

This PDF is a selection from an out-of-print volume from the National Bureau of Economic Research

Volume Title: Growth of Industrial Production in the Soviet Union

Volume Author/Editor: G. Warren Nutter assisted by Israel Borenstein and Adam Kaufman

Volume Publisher: Princeton University Press

Volume ISBN: 0-87014-074-4

Volume URL: <http://www.nber.org/books/nutt62-1>

Publication Date: 1962

Chapter Title: Appendix C: Employment, Value, and Population Data

Chapter Author: G. Warren Nutter, Israel Borenstein, Adam Kaufman

Chapter URL: <http://www.nber.org/chapters/c1983>

Chapter pages in book: (p. 497 - 519)

APPENDIX C

Employment, Value, and Population Data

EMPLOYMENT, VALUE, AND POPULATION DATA

TABLE C-1

PERSONS ENGAGED IN INDUSTRY, BY INDUSTRIES: SOVIET UNION, BENCHMARK YEARS, 1913-1955
(thousand full-time equivalents)

Industry	1913	1927/28	1933	1937	1940	1950	1955
I. Ferrous and nonferrous mining and metallurgy	425	281	573	626	603	998	1,121
Large-scale	425	281	573				
Small-scale	—	—	—				
A. Extraction of iron ore	49	27	45				
Large-scale	49	27	45				
Small-scale	—	—	—				
B. Extraction of manganese ore	7	6	8				
Large-scale	7	6	8				
Small-scale	—	—	—				
C. Ferrous metallurgy	242	212	365				
Large-scale	242	212	365				
Small-scale	—	—	—				
D. Nonferrous mining and metallurgy	127	36	155				
Large-scale	127	36	155				
Small-scale	—	—	—				
II. Fuel	315	399	725	739	857	1,260	1,514
Large-scale	314	397	725				
Small-scale	1 ^a	2	—				
A. Coal and coke	208	283	494				
Large-scale	208	283	494				
Small-scale	—	—	—				
B. Crude petroleum	47	41	31				
Large-scale	47	41	31				
Small-scale	—	—	—				
C. Petroleum refining	7	8	54				
Large-scale	7	8	54 ^b				
Small-scale	—	—	—				
D. Peat	52	67	146				
Large-scale	52	65	146 ^c				
Small-scale	—	2	—				
III. Electric power stations	20	28	97	125	134	229	295
Large-scale	20	28	95				
Small-scale	—	—	2				
IV. Chemicals (incl. rubber)	70	100	279	351	415	442	629
Large-scale	56	76	264				
Small-scale	14	24 ^d	15				
A. Basic chemicals	13	18	54				
Large-scale	13	18	54				
Small-scale	—	—	—				

(continued)

APPENDIX C

TABLE C-1 (continued)

Industry	1913	1927/28	1933	1937	1940	1950	1955
B. Paints and varnishes	n.a.	n.a.	10				
Large-scale	n.a.	5	9				
Small-scale	n.a.	n.a.	1				
C. Pharmaceutical chemicals	n.a.	n.a.	72				
Large-scale	n.a.	5	71				
Small-scale	n.a.	n.a.	1				
D. Rubber and asbestos	17	31	54				
Large-scale	17	31	54				
Small-scale	—	—	—				
E. All other chemicals	40	17	89				
Large-scale	26 ^d	17 ^e	76				
Small-scale	14	—	13				
V. Machine building and metal products	602	663	1,504	3,262	3,550	4,572	5,792
Large-scale	391	446	1,488				
Small-scale	211	217	16				
A. Machine building	303	391	811	2,925 ^t	3,202 ^t	1,884 ^t	2,594 ^t
Large-scale	250	336	804				
Small-scale	53 ^g	55	7				
1. Land transportation equipment (incl. tractors)	n.a.	n.a.	355				
Large-scale	n.a.	55	348				
Small-scale	n.a.	n.a.	7				
2. Shipbuilding	n.a.	n.a.	106				
Large-scale	n.a.	42	106				
Small-scale	n.a.	n.a.	—				
3. Agricultural machinery (excl. tractors)	n.a.	n.a.	110				
Large-scale	n.a.	51	110				
Small-scale	n.a.	n.a.	—				
4. Electrical and industrial machinery	n.a.	n.a.	240				
Large-scale	n.a.	188	240				
Small-scale	n.a.	n.a.	—				
B. Metal products	299	272	422	337 ^t	384 ^t	2,688 ^t	3,195 ^t
Large-scale	141	110	413				
Small-scale	158 ^g	162	9				
VI. Wood products, paper, and logging	1,073	768	1,798	1,929	2,210	2,799	2,891
Large-scale	176	180	1,687				
Small-scale	897	588	111				
A. Plywood and lumber	89	92	252				
Large-scale	89	92	247				
Small-scale	—	—	5				

(continued)

EMPLOYMENT, VALUE, AND POPULATION DATA

TABLE C-1 (continued)

Industry		1913	1927/28	1933	1937	1940	1950	1955
B.	Miscellaneous wood products	498	280	354				
	Large-scale	27	29	249 ^h				
	Small-scale	471	251 ⁱ	105				
C.	Matches	23	17	19				
	Large-scale	23	17	19				
	Small-scale	—	—	—				
D.	Pulp and paper	50	49	53				
	Large-scale	37	43	53				
	Small-scale	13 ^j	6	—				
E.	Logging	413	331	1,120				
	Large-scale	—	—	1,119				
	Small-scale	413 ^k	331	1				
VII.	Construction materials	231	221	520	351	455	802	1,160
	Large-scale	168	162	495				
	Small-scale	63	59	25				
	A. Cement industry	n.a.	22	33				
	Large-scale	19	22	33				
	Small-scale	n.a.	—	—				
	B. Bricks and other construction materials	n.a.	83	161				
	Large-scale	87	47	145				
	Small-scale	n.a.	36	16				
	C. Glass	n.a.	71	83				
	Large-scale	59	71	83				
	Small-scale	n.a.	—	—				
	D. Others	n.a.	45	243				
	Large-scale	3	22	234 ^l				
	Small-scale	n.a.	23	9				
VIII.	Printing	79	115	123	150	134	147	157
	Large-scale	70	76	115				
	Small-scale	9	39	8				
	A. Printing and publishing	n.a.	71	n.a.				
	Large-scale	49	64	n.a.				
	Small-scale	n.a.	7	n.a.				
	B. Stationery and art equipment	n.a.	44	n.a.				
	Large-scale	21	12	n.a.				
	Small-scale	n.a.	32	n.a.				
IX.	Textiles and allied products	1,847	1,919	2,000	2,568	2,733	2,602	3,343
	Large-scale	773	968	1,800				
	Small-scale	1,074	951	200				
	A. Cotton ginning	n.a.	5	16				
	Large-scale	11	5	16				
	Small-scale	n.a.	—	—				

(continued)

APPENDIX C

TABLE C-1 (continued)

Industry	1913	1927/28	1933	1937	1940	1950	1955
B. Primary processing of fibers	n.a.	4	73				
Large-scale	n.a. ^m	4	73				
Small-scale	n.a.	—	—				
C. Cotton fabrics	n.a.	610	516				
Large-scale	501	547	515				
Small-scale	n.a.	63	1				
D. Linen fabrics	n.a.	95	72				
Large-scale	71	93	72				
Small-scale	n.a.	2	—				
E. Woolen fabrics	n.a.	182	126				
Large-scale	91	77	97				
Small-scale	n.a.	105 ⁿ	29				
F. Silk fabrics	n.a.	34	25				
Large-scale	35	18	25				
Small-scale	n.a.	16	—				
G. Hemp and jute products	n.a.	59	86				
Large-scale	17	25	56				
Small-scale	n.a.	34 ^o	30				
H. Knitted goods	n.a.	104	192				
Large-scale	6	31	156				
Small-scale	n.a.	73	36				
I. Garment industry	n.a.	410	436				
Large-scale	6	79 ⁿ	403				
Small-scale	n.a.	331	33				
J. Leather industry	n.a.	93	48				
Large-scale	17	45	47				
Small-scale	n.a.	48	1				
K. Fur industry	n.a.	27	43				
Large-scale	4	5	41				
Small-scale	n.a.	22	2				
L. Boots and shoes, production and repair	n.a.	296	283				
Large-scale	14	39	239				
Small-scale	n.a.	257	44				
M. Others			84				
Large-scale			60				
Small-scale			24				
X. Food and allied products	1,072	803	1,094	1,478	1,554	1,637	1,790
Large-scale	448	322	905				
Small-scale	624	481	189				
A. Flour and groats	n.a.	167	174				
Large-scale	50	42	59				
Small-scale	n.a.	125 ^p	115				

(continued)

EMPLOYMENT, VALUE, AND POPULATION DATA

TABLE C-1 (continued)

Industry	1913	1927/28	1933	1937	1940	1950	1955
B. Sugar	148	60	91				
Large-scale	148	60	91				
Small-scale	—	—	—				
C. Confectionery	n.a.	42	64				
Large-scale	26	22	58				
Small-scale	n.a.	20	6				
D. Vegetable oil	n.a.	34	27				
Large-scale	13	14	20				
Small-scale	n.a.	20	7				
E. Starch and syrup	n.a.	5	15				
Large-scale	9	3	14				
Small-scale	n.a.	2	1				
F. Alcohol, wine, yeast, and vodka	25	39	76				
Large-scale	25	39	76 ^q				
Small-scale	—	—	—				
G. Beer and malt	12	15					
Large-scale	12	15					
Small-scale	—	—	—				
H. Tobacco and makhorka	32	29	21				
Large-scale	32	29	21				
Small-scale	—	—	—				
I. Salt	20	7	9				
Large-scale	20	7	9				
Small-scale	—	—	—				
J. Grease, tallow, and soap	n.a.	14	27				
Large-scale	11	11	24				
Small-scale	n.a.	3	3				
K. Fishing	277	229	180				
Large-scale	—	30	179				
Small-scale	277 ^r	199 ^r	1				
L. Others	n.a.	162	410				
Large-scale	102	50	354				
Small-scale	n.a.	112 ^s	56				
XI. All others	83	80	211	664	455	491	669
Large-scale	23	33	186				
Small-scale	60 ^t	47	25				
A. China and pottery	n.a.	39	37				
Large-scale	21	25	31				
Small-scale	n.a.	14	6				
B. Others	n.a.	41	174				
Large-scale	2 ^u	8 ^v	155				
Small-scale	n.a.	33 ^w	19				

(continued)

APPENDIX C

TABLE C-1 (concluded)

Industry	1913	1927/28	1933	1937	1940	1950	1955
Total excl. repair shops	5,817	5,379	8,653	12,243	13,100	15,979	19,361
Large-scale	2,864	2,971	8,062				
Small-scale	2,953	2,408	591				
XII. Repair shops	86	86	1,573	283 ^f	294 ^f	387 ^f	305 ^f
Large-scale	86	86	1,303				
Small-scale	—	—	270				
A. District railroad repair shops	86	86	271				
Large-scale	86 ^x	86 ^x	271				
Small-scale	—	—	—				
B. Other repair shops	n.a.	n.a.	1,302				
Large-scale	n.a.	n.a.	1,032 ^y				
Small-scale	n.a.	n.a.	270 ^y				
Total incl. repair shops	5,903	5,465	10,226	12,526	13,394	16,366	19,666
Large-scale	2,950	3,057	9,365				
Small-scale	2,953	2,408	861				

—: negligible.

^a Includes all mining products.

^b Includes all kinds of fuel processing.

^c Includes oil shale.

^d Includes paints, varnishes, and pharmaceutical chemicals.

^e Includes tar (4.4 th.), chemical wood processing (1.2 th.), and others (11.7 th.).

^f Sum of machine building, metal products, and repair shops apportioned to components by official gross production as estimated in Table F-1. For 1940, repair shops and metal products are apportioned by their 1937 breakdown. Conventional military products were apparently included under machine building up to 1950 and under metal products for 1950 and after; atomic energy may be included under machine building. See Appendix F.

^g Total small-scale for machine building and metal products apportioned to components by small-scale employment in 1927/28.

^h Includes furniture and prefabricated houses.

ⁱ Includes carts and sleds.

^j Paper products.

^k Employment in 1927/28 extrapolated by haulage of industrial timber (Table B-2).

Data underestimated because seasonal workers hired with their own horses are not included.

^l Includes extraction of minerals (125 th.) and others (109 th.).

^m Distributed among individual fibers.

ⁿ Includes felt and felt products.

^o Includes mixed fibers.

^p Derived from total no. of weeks worked in 1927/28 and the percentage share of total weeks worked accounted for by flour milling and grain cracking in 1928/29 (129, 189). This was divided by average annual no. of weeks worked in large-scale flour industry (45.4).

^q Includes beer and malt.

^r Employment in 1926/27 (203.7 th., 216, 126) extrapolated by fish catch (Table B-2).

^s Includes bakeries (49.3 th.), dairy products (31.5 th.), and others (31.3 th.).

^t School supplies and other products.

^u Artificial gas.

EMPLOYMENT, VALUE, AND POPULATION DATA

^v Includes water supply (7.4 th.) and artificial gas (0.9 th.).

^w Includes processing of materials of animal origin (10.6 th.).

^x No. of workers is taken to be half the 1932 level (222, 3 ff) and salaried personnel the same fraction of workers as for machine building in 1913 (see Table C-1a below).

^y Given in Soviet sources as "others" under machine building and metal products. The large-scale component is known to include maintenance repair shops, and we have assumed the entire category applies to repair shops of various kinds.

SOURCES AND DERIVATION OF TABLE C-1

(Note: Exceptions to these general explanations are separately footnoted above.)

1913

Total industry: Sum of large- and small-scale industry.

Large-scale industry: For "census" industry, sum of no. of workers (145, 398 ff, or 222, 3 ff) and of salaried personnel, the latter derived by dividing no. of workers by ratio of workers to salaried personnel. The ratios used are given in Table C-1a below, which is derived from data in the 1918 industrial census on employment in 1913 in "census" enterprises that still existed in 1918 (201, 180 f). When data were lacking for particular industries the avg. ratio for all covered industries was used.

TABLE C-1a
RATIO OF WORKERS TO SALARIED PERSONNEL IN LARGE-SCALE
INDUSTRY, BY INDUSTRIAL GROUP, 1913

Extraction and processing of minerals	15.4
Mining and metallurgy	16.3
Metal products	10.8
Machine building	10.0
Wood products	8.5
Chemical industry	7.5
Food industry	8.1
Products of animal origin	5.4
Leather and fur industry	14.7
Cotton industry	23.0
Woolen industry	16.9
Silk industry	24.4
Linen industry	20.0
Hemp industry	25.8
Mixed fibers	14.5
Garment industry	15.2
Paper industry	15.5
Printing industry	10.1
Scientific, school, and art equipment	7.3
Water supply and gas industry	4.5
All industries above	14.6

Small-scale industry: Estimates of no. of persons engaged in "noncensus" industry in 1913 on interwar Soviet territory made by a special committee of the Central Statistical Administration (10, pt. II, 91 ff). These estimates were reduced to full-time equivalents by multiplying them by ratio of no. of weeks worked in 1913 (see Table C-1b below) to full-time work year for "census" industry (assumed to be 48 weeks). When data were lacking for particular industries, the avg. no. of weeks worked for all covered industries was used to compute the ratio. The data in Table C-1b were derived from 10, 196.

APPENDIX C

TABLE C-1b
AVERAGE NUMBER OF WEEKS WORKED PER YEAR IN SMALL-SCALE INDUSTRY,
BY INDUSTRIAL GROUP, 1913

Extraction and processing of minerals	19.2
Metal products	31.2
Machine and machine tool building	26.8
Wood products	27.6
Chemical industry	16.8
Products of animal origin	27.2
Leather and fur industry	29.2
Cotton industry	24.0
Woolen industry	20.8
Silk industry	38.8
Linen industry	25.2
Hemp industry	22.8
Mixed fibers	27.2
Garment industry	30.4
Paper products	32.4
Scientific, school, and art equipment	31.6
All industries above	27.0

1927/28

Total industry: Sum of large- and small-scale industry.

Large-scale industry: Sum of no. of workers (derived from no. of workers in 1928/29 and percentage increase between 1927/28 and 1928/29, 388, 1929, No. 12, 88 ff) and no. of salaried personnel as of Jan. 1, 1928 (390, 1928, No. 8, 12 ff).

Small-scale industry: Total no. of weeks worked in small-scale industry (407, 1931, No. 8) apportioned among industries according to the percentage distribution for 1928/29 (129, 118 ff). For each industry, the total no. of weeks worked was divided by the avg. no. of weeks worked per worker in the corresponding large-scale industry. The latter averages are derived from the no. of days worked in each large-scale industry (388, 1929, No. 12, 88 ff) divided by 6 times the avg. annual no. of workers in the corresponding large-scale industry.

1933

Total industry: Sum of large- and small-scale industry.

Large-scale industry: Avg. annual no. of workers (362, 1935, No. 7, 41 ff) times ratio of total no. of persons engaged to no. of workers (derived from labor statistics for 1933, 268, 62 ff).

Small-scale industry: Taken from 1933 census (362, 1935, No. 7, 41 ff). Does not include "unorganized" *kustari* and artisans, which are given elsewhere (362, 1936, No. 1, 14 ff) as 295,000 in the city and 115,000 in the country. The value of their output is given (362, 1935, No. 8, 9) as less than 100 million rubles.

1937

Total industry: The total no. of persons engaged in all industry is the sum of (1) the avg. annual no. of production employees (10,112 th., 140, 50); (2) members of industrial producer coops (estimated at 1,500 th. from 206, 40); and (3) workers in collective farm enterprises, estimated at 914 th. from no. of workers in such enterprises in the RSFSR in 1935 (645 th., 362, 1936, No. 20, 10) divided by ratio of no. of collective farms in RSFSR to no. in USSR in 1937 (derived as 706 from 136, 125, and 140, 100). These figures for collective farm workers are apparently not in full-time equivalents and have not been adjusted. The total thus derived was broken down by industries according to the percentage distribution of production workers in industry (140, 49).

1940

Total industry: The total no. of persons engaged in all industry is the sum of (1) the avg. annual no. of production employees (10,967 th., 140, 48); (2) members of industrial producer coops, estimated at 1,628 th. from members of all producer coops in 1940

EMPLOYMENT, VALUE, AND POPULATION DATA

(1,832 th., 321, 10/17/40) times ratio of members in industrial coops to all members in 1955 (0.888 from data in 136, 44, and 140, 205); and (3) workers in enterprises belonging to collective farms (assumed to be 800 th., the same as in 1950). The total thus derived was broken down by industries according to the percentage distribution of production workers in industry (140, 49).

1950

Total industry: The total no. of persons engaged in all industry is the sum of (1) the avg. annual no. of production employees (14,144 th., 140, 205); (2) members of industrial producer coops, estimated at 1,422 th. from the members of producer coops in the RSFSR in 1950 (1,008 th., 136, 267) times the ratio of producer coop members in the USSR to those in the RSFSR in 1955 (derived as 1.41 from 138, 44, and 140, 267); and (3) workers in enterprises belonging to collective farms, estimated at 800 th. from no. of such enterprises (around 400 th. in 1949, 138, 42) and the assumption that each enterprise had an avg. of 2 full-time workers. The total thus derived was broken down by industries according to the percentage distribution of production workers in industry (140, 49).

1955

Total industry: The total no. of persons engaged in all industry is the sum of (1) the avg. annual no. of production employees (17,367 th., 140, 205, including a small no. of workers in nonfunded auxiliary enterprise directly attached to ministries); (2) members of industrial producer coops (1,600 th., 180, 23); and (3) workers in enterprises belonging to collective farms, estimated at 700 th. from the no. of such enterprises (350 th., 140, 48) and the assumption that each enterprise had an avg. of 2 full-time workers. The total thus derived was broken down by industries according to the percentage distribution of production workers in industry (140, 49).

GENERAL NOTE

The data on persons engaged in industry in 1937, 1940, 1950, and 1955 suffer from two main shortcomings. First, the total employment figures given in Soviet sources do not cover industrial overhead services, some categories of nonproduction employees, members of so-called "industrial collective farms," and industrial activities classified elsewhere (such as oil prospecting). Lack of information makes it impossible to estimate, even approximately, the overhead and maintenance personnel; but some information is available on the other categories of employment. Domestic help and day workers, who are not included in the total no. of persons engaged in industry, are given in Table C-1c below (269, 10 f):

TABLE C-1c
DOMESTIC HELP AND DAY WORKERS

	Thousands	Per Cent of Total Employment
1928	809.0	7.0
1929	706.0	5.8
1930	399.0	2.7
1931	352.0	1.9
1932	341.5	1.5
1933	292.4	1.3
1934	288.8	1.2
1935	300.0	1.2

It may be assumed that at least a third of these workers were employed in industry. Employment in forestry improvement, excluded from industrial employment, was 2.5% of total employment in 1932, 2.45% in 1937 (223, 138), and 2.45% in 1940 (72, 543, 512). Employment in oil prospecting, also excluded, was 0.6% of total employment in 1940 (72, 512 ff).

The second shortcoming of employment data for 1937 onward is that the percentage breakdown by industry (140, 49) applies only to so-called "production" workers. Hence

APPENDIX C

the ratio of production workers to salaried personnel is implicitly taken to be the same in all industries, which is not so. Employment in industries with a larger than average proportion of nonproduction personnel to production workers (such as machine building and electric power stations) is thereby understated. Employment in others with a smaller than average proportion (such as the fuel industry) is overstated. Table C-1d below shows the differences in percentage distributions of production workers and persons engaged by industry in 1933 and 1935 (data taken from 138, 49; 269, 71 ff; and Table C-1, this appendix).

TABLE C-1d
PERCENTAGE DISTRIBUTION OF LABOR FORCE, 1933 AND 1935

	<i>Production Workers</i> (1)		<i>Persons Engaged</i> (2)		<i>Col. 1 as % of Col. 2</i> (3)	
	1933	1935	1933	1935	1933	1935
Ferrous and nonferrous metallurgy	5.6	7.1	5.6	7.0	100	101
Fuel	7.2	7.9	7.1	7.6	101	104
Electric power	0.8	0.8	0.9	0.9	89	89
Chemicals (incl. paper)	2.8	3.4	2.7	3.5	104	97
Machine building and metal products	25.8	25.3	27.4	26.6	94	95
Wood, paper, and logging	18.0	20.1	17.6	19.4	102	104
Construction materials	4.0	4.9	5.1	4.8	78	102
Printing	1.1	1.2	1.2	1.3	92	92
Textiles and allied products	19.8	17.3	19.5	16.3	102	106
Food and allied products	11.8	10.2	10.8	10.7	109	95
Others	3.1	1.7	2.1	1.8	148	94

The relations between the two distributions (col. 3) are similar in both years except in the cases of chemicals, mineral construction materials, food and allied products, and "other industries." These inconsistencies may be explained by incomparabilities in the industrial classifications for the two sets of data for 1933. The data on production workers are taken from a source published in 1956 (138), while those on engaged persons are taken from sources published in the 1930's. It seems probable that the scope of some industrial categories (like "other industries") was redefined between 1933 and 1956.

For further comments on the reliability of our data on persons engaged, see Appendix A, technical note 7.

EMPLOYMENT, VALUE, AND POPULATION DATA

TABLE 1
TURNOVER, VALUE OF OUTPUT, AND VALUE ADDED, BY INDUSTRIES: SOVIET UNION, 1926/27, 1927/28, AND 1928/29
(million current rubles)

Industry	Turnover			Value of Output			Value Added		
	1926/27	1927/28	1928/29	1926/27	1927/28	1928/29	1926/27	1927/28	1928/29
I. Electric power stations									
Large-scale				158.9	191.7	237.3	101.5	122.4	151.5
Small-scale	—	—	0.8	158.9	191.7	236.5	101.5	122.4	151.0
II. Fuel									
Large-scale				1,025.5	1,186.9	1,315.7	682.8	759.9	844.0
Small-scale	—	0.9	1.4	1,025.5	1,186.0	1,314.3	682.8	759.2	842.8
A. Coal and coke									
Large-scale				354.4	416.7	455.1	287.3	333.5	364.2
Small-scale	—	—	—	354.4	416.7	455.1	287.3	333.5	364.2
B. Petroleum									
Large-scale				615.0	713.9	787.4	347.0	392.8	436.1
Small-scale	—	—	—	615.0	713.9	787.4	347.0	392.8	436.1
1. Crude petroleum and natural gas extraction									
Large-scale				304.2	336.0	375.4	260.2	287.3	321.1
Small-scale	—	—	—	304.2	336.0	375.4	260.2	287.3	321.1
2. Petroleum refining									
Large-scale				310.8	377.9	412.0	86.8	105.5	115.0
Small-scale	—	—	—	310.8	377.9	412.0	86.8	105.5	115.0
C. Peat									
Large-scale				51.4	52.0	67.8	46.0	31.1	40.7
Small-scale	—	0.9	1.4	51.4	51.1	66.4 ^a	46.0	30.4	39.5 ^b
D. Artificial gas									
Large-scale				4.6	4.3	5.4	2.6	2.4	3.0
Small-scale	—	—	—	4.6	4.3	5.4	2.6	2.4	3.0
III. Ferrous mining and metallurgy									
Large-scale				677.1	720.3	845.3	300.9	321.2	382.0
Small-scale	—	—	—	677.1	720.3	845.3	300.9	321.2	382.0

(continued)

TABLE C-2 (continued)

Industry	Turnover			Value of Output			Value Added		
	1926/27	1927/28	1928/29	1926/27	1927/28	1928/29	1926/27	1927/28	1928/29
A. Mining of ferrous ores									
Large-scale				38.3	44.0	65.7	29.9	34.4	51.4
Small-scale	—	—	—	38.3	44.0	65.7	29.9	34.4	51.4
1. Iron ore									
Large-scale				30.7	35.4	46.6	23.9	27.6	36.3
Small-scale	—	—	—	30.7	35.4	46.6	23.9	27.6	36.3
2. Manganese ore									
Large-scale				7.6	8.7	19.0	6.0	6.8	15.0
Small-scale	—	—	—	7.6	8.7	19.0	6.0	6.8	15.0
B. Ferrous metallurgy									
Large-scale				638.9	676.2	779.6	271.0	286.8	330.6
Small-scale	—	—	—	638.9	676.2	779.6	271.0	286.8	330.6
IV. Nonferrous mining and metallurgy									
Large-scale				80.6	95.0	79.0	46.6	52.2	34.5
Small-scale	—	0.2	0.4	80.6	94.8	78.6	46.6	52.1	34.3
A. Mining of nonferrous ores									
Large-scale				41.6	51.4	14.7	32.5	36.5	11.3
Small-scale	—	0.2	0.4	41.6	51.2	14.3 ^e	32.5	36.4	11.1 ^e
B. Nonferrous metallurgy									
Large-scale				39.0	43.6	64.3	14.1	15.7	23.2
Small-scale	—	—	—	39.0	43.6	64.3	14.1	15.7	23.2
V. Machine building and metal products									
Large-scale				1,593.5	1,696.1	2,233.0	786.9	874.2	1,148.1
Small-scale	247.5	284.7	313.1	1,368.7	1,431.3	1,936.3	665.8	736.0	997.1
A. Machine building				224.8	264.8	296.7	121.1	138.2	151.0
Large-scale				945.2	963.9	1,424.2	462.0	476.0	702.7
Small-scale	20.8	48.1	73.9	924.9	917.1	1,352.3	450.9	449.5	661.7
1. Land transportation equip. (incl. tractors)									
Large-scale				206.2	142.3 ^d	246.9	92.7	64.0 ^a	111.1
				206.2	142.3	246.9	92.7	64.0	111.1

EMPLOYMENT, VALUE, AND POPULATION DATA

2. Shipbuilding	99.8	85.3	130.7	37.4	30.2	46.8	
	Large-scale	99.1	79.0	36.9	26.4	39.8	
	Small-scale	0.7	6.3	11.7	0.5	3.8	7.0
3. Agricultural machinery (excl. tractors)							
	Large-scale	133.2	177.3 ^a	256.8	58.9	80.5 ^a	117.4
	Small-scale	132.4	163.8	231.0	58.5	72.5	102.1
4. Electrical and industrial machinery							
	Large-scale	0.8	13.5	25.8	0.4	8.0	15.3
	Small-scale	0.9	26.6				
B. Metal products							
	Large-scale	506.0	559.1	789.7	273.0	301.3	427.3
	Small-scale	487.2	532.0	755.4	262.8	286.6	408.6
D. All other chemicals							
	Large-scale	18.8	27.1	34.3	10.2	14.7	18.7
	Small-scale	19.2	35.0				
B. Metal products							
	Large-scale	648.2	732.2	808.8	324.8	398.2	445.5
	Small-scale	443.8	514.2	584.0 ^e	214.8	286.4	335.5 ^e
VI. Extraction of minerals for chemical, construction, glass and china industries							
	Large-scale	204.4	218.0	224.8	110.0	111.8	110.0
	Small-scale	226.7	236.6	239.2			
VII. Chemicals							
	Large-scale	37.0	52.3	79.7	26.6	37.5	57.3
	Small-scale	30.3	40.2	62.3	21.7	28.8	44.7
A. Basic chemicals							
	Large-scale	6.7	12.1	17.4	4.9	8.7	12.6
	Small-scale	6.8	17.6				
B. Paints and varnishes							
	Large-scale	271.4	310.9	408.5	116.2	132.6	172.6
	Small-scale	250.4	281.1	370.8	105.4	118.0	154.8
C. Pharmaceutical chemicals							
	Large-scale	21.0	29.8	37.7	10.8	14.6	17.8
	Small-scale	21.2	38.0				
D. All other chemicals							
	Large-scale	78.6	85.6	103.5	39.7	43.1	52.1
	Small-scale	78.0	84.7	102.4	39.4	42.8	51.7
VIII. Construction materials							
	Large-scale	0.6	0.9	1.1	0.3	0.3	0.4
	Small-scale	0.9	1.1				
A. Basic chemicals							
	Large-scale	49.9	60.8	72.3	19.7	23.5	27.7
	Small-scale	44.8	53.5	63.1	17.5	20.8	24.6
B. Paints and varnishes							
	Large-scale	5.1	7.3	9.2	2.2	2.7	3.1
	Small-scale	5.1	9.2				
C. Pharmaceutical chemicals							
	Large-scale	43.6	50.0	69.2	16.6	19.1	26.4
	Small-scale	42.6	48.5	67.3	16.2	18.5	25.7
D. All other chemicals							
	Large-scale	1.0	1.5	1.9	0.4	0.6	0.7
	Small-scale	1.0	1.9				
VIII. Construction materials							
	Large-scale	99.2	114.7	163.6	40.4	46.9	66.6
	Small-scale	85.0	94.5	138.1 ^f	32.4	35.9	52.9 ^f
A. Basic chemicals							
	Large-scale	14.2	20.2	25.5	8.0	11.0	13.7
	Small-scale	14.4	25.7				
B. Paints and varnishes							
	Large-scale	181.3	199.5	246.4	110.8	122.7	152.4
	Small-scale	150.6	155.6	190.8	89.8	92.5	113.9
C. Pharmaceutical chemicals							
	Large-scale	30.7	43.9	55.6	21.0	30.2	38.5
	Small-scale	31.0	55.8				

(continued)

TABLE C-2 (continued)

Industry	Turnover			Value of Output			Value Added		
	1926/27	1927/28	1928/29	1926/27	1927/28	1928/29	1926/27	1927/28	1928/29
A. Cement									
Large-scale				63.1	67.4	79.6	31.8	33.9	40.1
Small-scale	0.9	1.4	1.9	62.2	66.0	77.7	31.3	33.2	39.1
				0.9	1.4	1.9	0.5	0.7	1.0
B. Bricks and other construction materials									
Large-scale				118.2	132.1	167.0	79.0	88.8	112.4
Small-scale	30.1	42.7	54.0	88.3	89.6	113.2	58.4	59.3	74.9
				29.9	42.5	53.8	20.6	29.5	37.5
IX. Glass and china industries									
Large-scale				160.7	171.0	210.1	105.5	112.2	137.0
Small-scale	2.4	3.8	5.1	158.3	167.2	205.0	104.3	110.2	135.6
				2.4	3.8	5.1	1.2	2.0	2.6
A. Glass									
Large-scale				115.8	121.1	151.3	75.2	78.5	98.0
Small-scale	2.3	3.6	4.9	113.5	117.5	146.5	74.0	76.6	95.5
				2.3	3.6	4.8	1.2	1.9	2.5
B. China									
Large-scale				44.9	49.9	58.7	30.3	33.7	39.6
Small-scale	0.1	0.2	0.3	44.8	49.7	58.4	30.3	33.6	39.5
				0.1	0.2	0.3	0.06	0.1	0.1
X. Extraction of all other minerals (incl. asbestos, excl. salt)									
Large-scale				28.9	32.7	42.0	17.8	20.1	25.8
Small-scale	0.6	1.0	1.3	28.3	31.7	40.7	17.5	19.6	25.1
				0.6	1.0	1.3	0.3	0.5	0.7
A. Asbestos									
Large-scale				6.9	7.8	9.3	4.7	5.3	6.4
Small-scale	0.01	0.02	0.03	6.9	7.8	9.3	4.7	5.3	6.4
				0.01	0.02	0.03	0.01	0.01	0.01
B. All other mineral products									
Large-scale				22.1	24.8	32.6	13.1	14.8	19.3
Small-scale	0.6	0.9	1.3	21.5	23.9	31.4	12.8	14.3	18.7
				0.6	0.9	1.2	0.3	0.5	0.6
XI. Rubber products									
Large-scale				148.7	184.0	225.9	83.1	102.6	126.0
Small-scale	1.0	1.3	1.7	147.8	182.7	224.2	82.7	102.1	125.4
				0.9	1.3	1.7	0.4	0.5	0.6

EMPLOYMENT, VALUE, AND POPULATION DATA

XII. Wood products (incl. matches)	Large-scale	201.0	232.6	257.1	661.3	733.0	502.2	265.3	245.1
	Small-scale				183.6	219.4	248.5	110.9	133.9
	A. Plywood and lumber				369.9	402.0	484.5	134.0	173.5
	Large-scale				356.0	386.6	468.1	126.4	166.3
	Small-scale	16.0	16.5	16.5	13.9	15.4	16.4	7.6	7.2
	B. Miscellaneous wood products				261.2	319.3	372.6	137.1	178.6
	Large-scale				91.5	115.3	140.5	33.8	51.9
	Small-scale	185.0	216.1	240.6	169.7	204.0	232.1	103.3	126.7
	C. Matches				30.3	34.4	45.2	18.1	20.6
	Large-scale				30.3	34.4	45.2	18.1	20.6
Small-scale	—	—	—	—	—	—	—	—	
XIII. Logging	Large-scale				765.0	721.8	814.0	612.0	577.0
	Small-scale	765.0	721.8	814.0	765.0 ^a	721.8 ^b	814.0 ^a	612.0 ^a	577.0 ^a
XIV. Pulp and paper	Large-scale				181.6	192.5	256.2	84.0	88.4
	Small-scale	13.6	14.0	14.0	169.7	179.6	242.6	78.9	83.3
					11.9	12.9	13.6	5.1	5.1
XV. Textiles and allied products	Large-scale				3,798.2	4,193.5	4,893.5	1,397.9	1,778.2
	Small-scale	392.7	479.3	551.3	3,465.8	3,789.8	4,431.0	1,250.6	1,599.6
					332.4	403.7	462.5	147.3	178.6
A. Cotton industry	Large-scale				2,541.3	2,775.5	3,148.9	855.3	930.4
	Small-scale	87.4	115.0	139.0	2,474.5	2,687.4	3,042.1	838.4	908.3
1. Cotton ginning	Large-scale				66.8	88.1	106.8	16.9	22.1
	Small-scale				186.9	212.0	267.2	18.3	20.9
2. Cotton textiles	Large-scale				185.8	210.5	265.3	18.2	20.6
	Small-scale	1.1	1.8	2.5	1.1	1.5	1.9	0.1	0.3
B. Flax and mixed fibers	Large-scale				2,354.4	2,563.5	2,881.6	837.0	909.5
	Small-scale	86.3	113.1	136.5	2,288.7	2,476.9	2,776.8	820.2	887.7
C. Jute and other bast fibers	Large-scale				65.7	86.6	104.8	16.8	21.8
	Small-scale				254.9	249.6	305.4	117.6	116.2
D. Miscellaneous textile products	Large-scale				248.2	241.1	295.4	115.1	113.3
	Small-scale	7.6	9.6	11.4	6.7	8.5	10.0	2.5	2.9

(continued)

TABLE C-2 (continued)

Industry	Turnover			Value of Output			Value Added		
	1926/27	1927/28	1928/29	1926/27	1927/28	1928/29	1926/27	1927/28	1928/29
1. Primary processing of mixed fibers									
Large-scale				32.4	34.7	48.8	13.1	13.9	19.4
Small-scale	2.3	4.7	7.0	30.2	30.6	43.0	12.1	12.3	17.3
				2.2	4.1	5.8	1.0	1.6	2.1
2. Processing of flax									
Large-scale				222.4	214.8	256.5	104.5	102.3	122.1
Small-scale	5.2	4.9	4.4	218.0	210.5	252.4	103.0	101.0	121.1
				4.4	4.3	4.1	1.5	1.3	1.0
C. Wool industry									
Large-scale				538.0	595.6	698.0	199.7	217.1	250.2
Small-scale	75.6	103.7	128.7	464.1	496.9	577.7	185.0	198.5	228.2
				73.9	98.7	120.3	14.7	18.6	22.0
1. Wool washing									
Large-scale				16.6	16.8	28.0	1.7	1.7	2.9
Small-scale	0.4	0.6	0.7	16.2	16.3	27.3	1.7	1.7	2.8
				0.4	0.5	0.7	0.04	0.08	0.1
2. Wool products									
Large-scale				521.4	578.7	670.1	197.9	215.3	247.1
Small-scale	75.1	103.2	128.0	447.9	480.6	550.4	183.3	196.8	225.3
				73.5	98.1	119.7	14.6	18.5	21.8
D. Silk industry									
Large-scale				96.0	132.8	191.9	31.7	42.9	60.6
Small-scale	25.0	36.3	46.5	77.0	102.0	150.2	23.1	30.6	45.0
				19.0	30.8	41.7	8.6	12.3	15.6
E. Hemp and jute products									
Large-scale				86.7	99.4	116.7	34.8	39.9	46.8
Small-scale	19.2	23.5	27.1	69.9	78.3	91.9	29.4	33.0	38.7
				16.8	21.1	24.8	5.4	6.9	8.1
F. Knitted goods									
Large-scale				161.0	210.0	280.4	70.2	89.4	116.8
Small-scale	81.1	91.0	98.0	105.4	150.5	218.7	42.1	60.2	87.4
				55.6	59.5	61.7	28.1	29.2	29.4
G. Felt products									
Large-scale				120.4	130.4	152.2	88.6	97.0	114.7
Small-scale	96.8	100.2	100.6	26.8 ^j	33.5	54.9 ^j	17.5 ^j	23.4	40.8 ^j
				93.6	96.9	97.3	71.1	73.6	73.9
XVI. Garment industry									
Large-scale				794.5	896.0	1,119.3	243.8	274.9	338.1
Small-scale	597.6	574.8	534.3	226.8 ^j	349.8	611.5 ^j	61.7 ^j	94.9	165.7 ^j
				567.7	546.2	507.8	182.1	180.0	172.4

XVII. LEARNER, IUI, AND SIDE INDUSTRY

(continued)

TABLE C-2 (concluded)

Industry	Turnover			Value of Output			Value Added		
	1926/27	1927/28	1928/29	1926/27	1927/28	1928/29	1926/27	1927/28	1928/29
F. Wine, yeast, and vodka									
Large-scale				362.7	362.7	372.1	165.0	164.8	168.7
Small-scale	5.7	7.1	8.3	357.9	356.6	364.8	163.5	162.9	166.6
				4.8	6.1	7.3	1.5	1.9	2.1
G. Beer and malt									
Large-scale				104.2	97.1	95.4	65.4	60.9	59.8
Small-scale	0.5	0.7	0.8	103.7	96.5	94.7	65.3	60.7	59.6
				0.5	0.6	0.7	0.1	0.2	0.2
H. Tobacco and makhorka									
Large-scale				169.7	177.6	186.5	72.1	75.5	80.1
Small-scale	1.9	2.4	2.8	168.1	175.5	184.1	71.6	74.9	79.4
				1.6	2.1	2.4	0.5	0.6	0.7
I. Salt									
Large-scale				17.1	16.4	19.8	12.3	11.7	14.2
Small-scale	—	—	—	17.1	16.4	19.8	12.3	11.7	14.2
				—	—	—	—	—	—
J. Others									
Large-scale				865.2	1,090.2	1,347.0	237.6	297.9	368.1
Small-scale	531.9	594.8	639.5	344.7	503.3	711.8	100.2	146.3	207.0
				520.5	586.9	635.2	137.4	151.6	161.1
XX. Fishing									
Large-scale				209.2 ⁿ	242.8 ^h	276.3 ^o	167.4 ⁱ	194.2 ⁱ	221.0 ⁱ
Small-scale	209.2 ^k	211.0 ^k	236.5 ^k	—	31.8 ^p	36.2 ^p	—	25.4 ^o	29.0 ^p
				209.2	211.0 ^p	240.1 ^p	167.4	168.8 ^o	192.0 ^p
XXI. Printing, publishing, stationery, etc.									
Large-scale				265.8	294.5	377.9	143.2	158.8	204.5
Small-scale	53.3	60.3	65.4	216.6	237.9	315.7	112.8	124.6	167.6
				49.2	56.6	62.2	30.4	34.2	36.9
A. Printing and publishing									
Large-scale				211.7	220.5	265.2	109.0	112.7	134.2
Small-scale	24.5	18.2	11.3	190.0	204.2	254.8	95.5	102.7	128.1
				21.7	16.3	10.4	13.5	10.0	6.1
B. Stationery and art equipment									
Large-scale				54.1	74.1	112.7	34.2	46.1	70.4
Small-scale	28.8	42.1	54.1	26.6	33.8	60.9	17.3	21.9	39.6
				27.5	40.3	51.8	16.9	24.2	30.8
XXII. All others									
Large-scale				151.1	172.0	222.2	82.6	88.5	105.7
Small-scale	50.2	73.0	91.7	97.2	105.4	145.7	58.6	63.3	80.6
				52.0	66.6	76.5	24.0	25.2	25.1

APPENDIX C

SOURCES AND DERIVATION OF TABLE C-2

(Note: Exceptions to these general explanations are separately footnoted above.)

Turnover (valovoi oborot) is the value of all goods produced and work done on a shop basis. That is, value is calculated at the transfer of goods from one shop within an enterprise to another.

Value of output (valovaia produktsiia) is the value of goods produced and work done on an enterprise basis, but including some intershop transfers in a few industries (e.g., textiles, ferrous metals, and meat packing).

Value added (uslovnaia chistaia produktsiia) is value of output minus the value of materials, fuel, and electricity consumed in the process of fabrication. As defined here, value added includes amortization and taxes.

Turnover (small-scale industry)

1926/27: Derived primarily from 249, 482 ff. Additional breakdown taken from 137, 88 ff, and estimated from the percentage distribution within an industry averaged for 1924/25 (248, 245 ff) and 1928/29 (129, 11 f, 117 ff). When no data were available for 1924/25, the 1928/29 distribution was used.

1927/28: Avg. turnover for 1926/27 and 1928/29 times ratio for total small-scale value of output (1.0156) of 1927/28 (363, 1929, No. 9, 281) to avg. for 1926/27 and 1928/29.

1928/29: Derived primarily from 129, 11 f. Additional breakdown derived from data in 129, 118 ff.

Value of Output (large-scale industry)

1926/27: Derived from 47, table 3, 84 ff.

1927/28: Derived from 249, 324 ff.

1928/29: Taken from 388, 1929, No. 12, 88 ff.

Value of Output (small-scale industry)

1926/27: Turnover times avg. ratio of value of output to turnover for 1924/25 (both in 248, 245 ff) and for 1928/29.

1927/28: Avg. value of output for 1926/27 and 1928/29 times ratio for total small-scale value of output (1.0156) of 1927/28 (363, 1929, No. 9, 281) to avg. for 1926/27 and 1928/29.

1928/29: Taken from 129, 14 ff.

Value Added (large-scale industry)

1926/27: Large-scale value of output minus cost of basic and auxiliary materials and fuel consumed (47, table 3, 84 ff).

1927/28: Large-scale value of output times 1926/27 ratio for large-scale industry of value added to value of output.

1928/29: Large-scale value of output times 1926/27 ratio for large-scale industry of value added to value of output.

Value Added (small-scale industry)

1926/27: Turnover times avg. ratio of value added to turnover for 1924/25 (both in 248, 245 ff) and for 1928/29 (both in 129, 14 ff). When no ratio could be computed for 1924/25, the 1928/29 ratio was used.

1927/28: Avg. value added for 1926/27 and 1928/29 times ratio for total small-scale value of output (1.0156) of 1927/28 (363, 1929, No. 9, 281) to avg. for 1926/27 for 1928/29.

1928/29: Value of output minus cost of materials and fuel consumed (129, 118 ff) times ratio of turnover in basic source (129, 14 ff) to turnover in the other source (129, 118 ff), the latter adjustment being required because of differences in coverage.

EMPLOYMENT, VALUE, AND POPULATION DATA

TABLE C-3

ESTIMATED POPULATION: RUSSIA AND SOVIET UNION, SELECTED YEARS, 1858-1958^a
(million persons)

1858	72.8	1928	151.4
1860	74	1929	153.9
1865	80	1930	155.8
1870	86	1931	157.4
1875	92	1932	158.2
1880	99	1933	158.7
1885	106	1934	159.6
1890	113	1935	160.7
1895	122	1936	162.4
1897	125.6	1937	165.2
1900	132		
1905	144	1938	168.6
1910	157	1939	172.1
1913 ^a	164.2	1940	198.9
1913 ^a	138.0	1945	175.3 ^b
1914	140.8		
1915	142.2	1946	174.9
1916	142.2	1947	175.0
1917	142.2	1948	176.1
		1949	178.5
1918	140.8	1950	181.5
1919	139.2		
1920	136.7	1951	184.7
1921	135.4	1952	187.9
1922	135.2	1953	191.0
		1954	194.2
1923	136.1	1955	197.6
1924	138.6		
1925	141.8	1956	201.0
1926	145.3	1957	204.0
1927	148.6	1958	207.2

^a Current territory. For 1913, first figure applies to Tsarist territory, the second to Soviet interwar territory. The former is estimated as the latter times the ratio for Jan. 1, 1914, of population in the two territories.

^b Annual change for 1945-1946 is assumed to be double the change for the first half of 1946 as estimated by Harold Wool (592).

SOURCE:

- 1858 286, 8.
- 1860, 1865, 1870, 1875, 1880, Interpolated logarithmically between 1858 and 1897.
- 1885, 1890, 1895 156, I, iii.
- 1897 Interpolated logarithmically between 1897 and 1913.
- 1900, 1905, 1910 592. Population as of July 1.
- 1913-1955 Population as of July 1. Logarithmic interpolation between official estimate of 200.2 mill. as of April 1956 (138, 17) and census enumeration of 208.8 as of January 15, 1959 (141, 7).
- 1956-1958

